



Thomas, J., Quadflieg, S., & O'Hara, L. (2016). Implicit out-group preference is associated with eating disorder symptoms amongst Emirati females. *Eating Behaviors*, 21, 48-53.  
<https://doi.org/10.1016/j.eatbeh.2015.12.005>

Peer reviewed version

License (if available):  
Unspecified

Link to published version (if available):  
[10.1016/j.eatbeh.2015.12.005](https://doi.org/10.1016/j.eatbeh.2015.12.005)

[Link to publication record in Explore Bristol Research](#)  
PDF-document

This is the author accepted manuscript (AAM). The final published version (version of record) is available online via Elsevier at [10.1016/j.eatbeh.2015.12.005](https://doi.org/10.1016/j.eatbeh.2015.12.005).

## University of Bristol - Explore Bristol Research

### General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:  
<http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

SYMPTOMS

Implicit Out-Group Preference is Associated with Eating Disorders Symptoms Amongst Emirati  
Females

Justin Thomas<sup>1</sup>, Susanne Quadflieg<sup>2</sup> and Lily O'Hara<sup>3</sup>

<sup>1</sup>Zayed University, UAE

<sup>2</sup>University of Bristol, UK

<sup>3</sup>Emirates College for Advanced Education, UAE

**Corresponding Author:**

Dr. Justin Thomas CPsychol. Ph.D.

Zayed University

Department of Natural Science and Public Health

PO BOX 144534

Abu Dhabi, United Arab Emirates

Email: Justin.thomas@zu.ac.ae

Telephone: +971 (0) 2 599 3616

### **Abstract**

Studies exploring the relationship between acculturation and eating disorders symptoms have proven equivocal. Socially desirable responding associated with the use of explicit measures may account for these mixed findings. This study explores the relationship between in-group identity, acculturation and eating disorders symptoms using both implicit and explicit assessments.

Emirati female college students ( $N=94$ ) completed an affective priming task (APT) designed to implicitly assess Emirati in-group evaluations. Participants also completed explicit measures, including the Westernization Survey and the Multicomponent In-group Identification Scale.

Eating disorders symptoms were assessed using the Eating Attitudes Test. Only implicit in-group evaluations were correlated with eating disorders symptoms. Specifically, increases in in-group preference were associated with lower levels of eating disorders symptomatology. Furthermore, participants with an actual out-group preference had significantly higher levels of eating disorders symptomatology compared with those demonstrating an in-group preference.

These findings support the acculturative stress hypothesis, and suggest that the relationship between eating disorders and acculturation may be better understood with reference to implicit rather than explicit in-group evaluations.

*Keywords:* Acculturation, Arab, eating disorders, identity, in-group evaluation,

## Implicit Out-Group Preference is Associated with Eating Disorders Symptoms Amongst Emirati Females

Acculturation generally refers to a process of cultural change resulting from the meeting of two cultures (Hunt, Schneider, & Comer, 2004; Spindler & Spindler, 1963). In an increasingly globalized world, the health implications of acculturation have attracted widespread scientific attention (Koneru, Weisman, Flynn, & Betancourt, 2007). Yet, this attention has frequently focused on minority immigrant communities in Western nations. (Thomas, 2013). Research on acculturation and mental health targeting these minorities has begun to reveal a complex and equivocal picture. Some studies reported a beneficial association, others a detrimental one, and others no association at all (for review see Koneru et al., 2007) In part, these discrepancies seem to arise from differences in the way acculturation was operationalized and/or measured from study to study (Hunt et al., 2004; Koneru et al., 2007). Alternatively, however, they may also have captured context-specific differences in coping with acculturation, or disorder-specific resilience and vulnerability.

In the United Arab Emirates (UAE) the acculturative context differs from that of minority immigrant communities in Western nations. At present, as a result of large-scale migration to the UAE, indigenous citizens (Emiratis) have become a minority. In 2009, the UAE's National Bureau of Statistics (2009) reported that Emiratis comprised only 11.38% of the UAE's total population. This situation is as a result of the nation's rapid socio-economic developments, fuelled by the commercial exploitation of oil and gas reserves since the 1970s (WHO, 2006). Beyond the large number of foreign expatriates in the UAE another proposed acculturative factor is education. Western educational curricula, taught in English, often by western expatriate teachers, have become increasingly common (Davidson, 2008). Furthermore, the rise in

household income has enabled frequent and extended overseas travel, and ensured widespread access to satellite TV, Internet and all forms of information technology (Mourtada-Sabbah, Al-Mutawa, Fox, & Walters, 2008). All of these factors (demography, media, education and travel) are often considered as contributing to widespread acculturation within the UAE, particularly amongst the youth (Alsharekh & Sprinborg, 2008; Bristol-Rhys, 2010; Davidson, 2008; Fox, Mourtada-Sabbah, & Al-Mutawa, 2006; Mourtada-Sabbah et al., 2008; Taryam, 2011).

In terms of health in the UAE, acculturation is viewed as having contributed to an increase in chronic lifestyle disorders, such as diabetes and hypertension (Eapen, Mabrouk, & Bin-Othman, 2006). Similarly, acculturation is also suspected of playing a role in the rise of psychological problems (Ghubash, Daradkeh, Al-Muzafari, Manssori, & Abou-Saleh, 2001), particularly those associated with eating and body image concerns (Abou-Saleh, Younis, & Karim, 1996; Gordon, 2000; Nasser, 2009; Schulte & Thomas, 2013; Thomas, Abdulrahman, & Khan, 2010). Cases of eating disorders, specifically anorexia nervosa, were first documented in the United Arab Emirates in the 1990s (Abou-Saleh et al., 1996). Consistent with the 'spectrum hypothesis' of eating disorders, subsequent research identified a relatively high rate of subclinical cases amongst Emirati females (Eapen et al., 2006; Schulte & Thomas, 2013; Thomas et al., 2010); a finding also recently extended to Emirati males (Musaiger, Al-Mannai, & Al-Lalla, 2014). Acculturation - the process by which members of one cultural group adopt the beliefs and behaviors of another group (Solis, Marks, Garcia, & Shelton, 1990) - is commonly proposed as an explanation for the relatively high levels of eating disorders symptomatology found in previous UAE-based studies.

Beyond the UAE context, it has been widely argued that contemporary eating disorders are profoundly influenced by Western social norms (Gordon, 2000, 2001), also referred to as the

“global culture of modernity” (Nasser, 2009). This global culture, which has come to characterize many rapidly urbanizing parts of the world, is viewed as eliciting a rise in obesity rates, which is closely followed by increases in weight consciousness and disordered eating. The global culture’s media has also been implicated in the rise of disordered eating, and has been criticized for the standardization and marketing of an aesthetic ideal that often challenges traditional body image ideals (Nasser, 2009). In support of this view, Gordon (2001) reviewed epidemiological data for nations where eating disorders first began being reported in the 1990s. He identified four pivotal characteristics that these nations had in common: (1) rising rates of obesity (2) highly developed economies or rapid economic change (3) changing and conflicting gender roles for women and (4) a global consumer culture with an emphasis on slenderness as a female body ideal. All four of Gordon’s factors resonate strongly with the UAE’s rapid socio-economic transition (Thomas et al., 2010).

Nasser (2009) hypothesizes that in the context of such transitional circumstances, those individuals with insufficient adaptive resources to support adjustment to the new cultural environment may suffer from “acculturative stress”. She further argues that, in such circumstances, some individuals “resort to the ‘body’ as a new medium for expressing this cultural confusion and distress” (p. 347). This idea of a relationship between eating disorders and acculturative stress is supported by higher rates of eating disorders symptoms amongst ethnic minority and immigrant populations within Western nations (Davis & Katzman, 1999; Nasser, 1986; T. N. Robinson et al., 1996). In addition, several studies conducted amongst individuals in “non-Western” contexts have also reported a positive relationship between measures of Western acculturation and eating disorders symptoms (Al-Adawi et al., 2002; Al-Subaie, 2000; Eapen et al., 2006).

The dominant idea in much of this cross-cultural research is that increased exposure to Western values regarding thinness (i.e., the thin body cult) plays a key role in the development of eating disorders in non-Westerners. This assumption however requires a critical re-examination, especially in light of conflicting findings (Rieger, Touyz, Swain, & Beumont, 2001). Not only have several studies failed to find the anticipated positive relationship between Western acculturation and eating disorders symptoms (Haudek, Rorty, & Henker, 1999; Hill & Bhatti, 1995), at least one study has even reported the opposite link. This study undertaken amongst schoolgirls of Asian origin in the UK, found that elevated eating disorders symptoms were associated with traditional, rather than Western, cultural orientations. The study's authors suggest that it may be the stress caused by cultural adjustment, rather than the influence of Western beauty ideals per se, that contributes to the development of disordered eating (Mumford, Whitehouse, & Platts, 1991).

Interestingly, previous explorations of in-group/out-group evaluations in the context of eating disorders have not involved the use of implicit measures. This omission seems noteworthy, considering that social-cognitive studies frequently report a divergence between implicit and explicit evaluations of societal groups (D.M Amodio & S.A Mendoza, 2010). An early demonstration of this divergence was reported by Rankin and Campbell (1955), who showed that White participants demonstrated significantly greater autonomic arousal when a Black, as opposed to a White, experimenter ostensibly checked their pulse, despite expressing similar attitudes towards both experimenters. Since this seminal study, implicit assessments of group-based evaluations have been widely used in social-psychological research. These measures tend to circumvent socially desirable responding by obtaining a more direct quantification of how positive people feel about the groups they belong to compared to those

they do not belong to (Dovidio, Kawakami, Johnson, & Howard, 1997; Fazio & Hilden, 2001; Fazio, Jackson, Dunton, & Williams, 1995; Shoda & McConnell, 2014).

A common implicit measure is the implicit associations task (IAT). In this task, relatively faster response times for sorting in-group targets (e.g., White faces) with positive words (e.g., Good) and out-group targets (e.g., Black faces) with negative words (e.g., Bad) compared to the reversed pairing are viewed as signaling in-group preference (D.M. Amodio & S.A. Mendoza, 2010). The measure's sensitivity was recently demonstrated by a study exploring in-group preference amongst bilingual (Welsh/English) individuals (Hadden, Ward, Mills, Davies, & Bentall, In Subm). It was found that Welsh participants who spoke Welsh as their mother tongue (L1 speakers) demonstrated a stronger in-group preference than participants who had learned Welsh after learning English (L2 speakers). In other words, the relative preference to associate Welsh forenames (e.g., Ieuan, Dafydd, Cerys) with pleasant target words (e.g., good, smart, clean), and English forenames (e.g., John, Alice, David) with negative target words (e.g., bad, dumb, dirty) over their reverse pairing was larger for L1s than L2s. Interestingly, on an explicit measure, the opposite finding emerged: L2 Welsh speakers reported more positive, pro-Welsh attitudes than their L1 counterparts. These findings further underlined the pivotal divergence often observed between implicit and explicit group-based evaluations.

Building on these findings, the present study used both implicit and explicit measures of in-group evaluation and explored their relationship to eating disorders symptoms. In line with the acculturative stress model, it was hypothesized that relative decreases in in-group preference would be associated with higher levels of eating disorders symptomatology.

## **Method**



## Participants

Ninety-four Arab citizens of the United Arab Emirates, all female college students, participated in the study for course credit as part of an introductory psychology class at Zayed University in Abu Dhabi, UAE. All participants were bilingual in Arabic and English. The language of instruction at the university is English, and an IELTS (International English Language Testing System) score of 6 is mandatory for admission to a degree program. The mean age of participants was 21.47 ( $SD = 3.87$ ). Four participants were excluded based on obtaining extreme outlying error rates on the affective priming task, suggesting that they may not have fully comprehended or complied with the task.

## Measures

All self-report measures were presented in dual language form, with English and Arabic presented alongside each other. Bilingual Arabic language faculty undertook the translation and independent back translation of each measure, with oversight by the first author of this paper.

**Bilingual language competency:** A four-item scale was developed to assess self-reported language competency for both English and Arabic. This scale simply asked participants to rate their spoken and written English on a scale of 1 (very poor) to 10 (excellent), and to do the same for Arabic. Language scores were calculated by subtracting total English from total Arabic scores. Higher scores reflect relatively stronger English language self-ratings.

**Eating Attitudes Test (EAT-26):** Eating disorders symptomatology was assessed using the EAT-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982). This is the shortened version of the test originally developed as an index of symptoms frequently observed in anorexia nervosa. The EAT-26 has been widely used in research with clinical and non-clinical samples. It has been used as a screening tool for eating disorders and has a reported sensitivity of 90% when measured

against a diagnostic interview based on DSM-IV criteria (Mintz & O'Halloran, 2000). The scale has 26 items scored on a 6-point Likert-type scale, resulting in scores ranging from 0 to 78. Higher scores are indicative of higher levels of abnormal eating attitudes and disturbed eating patterns, with a screening cut-off score of 20 used to identify individuals at risk of eating disorders (Park & Beaudet, 2007). Previous studies with Emirati samples have found the EAT-26 to be reliable (Schulte & Thomas, 2013; Thomas et al., 2010). The internal reliability of the EAT-26 in the present study was good ( $\alpha = .84$ ).

**Multicomponent in-group identification scale (MIIS):** Explicit in-group identification was assessed using the multicomponent in-group identification scale (Leach et al., 2008). This scale comprises 14-items assessing 5 components of in-group identity (*solidarity, satisfaction, centrality, self stereotyping and in-group homogeneity*). Items are scored on a seven-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree); higher scores are indicative of greater in-group identification. Example items included: "I feel a bond with [In-group]", "I think that [In-group] have a lot to be proud of" and, "The fact that I am [In-group] is an important part of my identity". The phrase [In-group] was replaced with the term Emirati or Emiratis as appropriate. The multicomponent in-group identification scale has previously reported good construct, predictive, discriminant and concurrent validity, in addition to acceptable internal reliability (Leach et al., 2008). Internal reliability for the scale in the present study was:  $\alpha = .84$ .

**Westernization Survey:** Western acculturation was assessed using an adapted version of the Westernization Survey (Stigler et al., 2010). This 18-item survey was originally developed as a measure of acculturation amongst Latino immigrants in North America. For the present study it was adapted to the Emirati context. The measure focuses on behavior, food, language and media consumption habits, assessing the relative frequency of Western and indigenous cultural

behaviors on a scale scored from 1 (never) to 4 (always). Scores are calculated by subtracting the Western scale from the Arab/Emirati scale; higher scores indicate greater Western acculturation. Internal reliability for the Emirati and Western scales in the present study were acceptable,  $\alpha = .79$  for both.

**Implicit Preference Measure.** To assess implicit evaluations in the current study an affective priming task (APT) was used. In an APT, relatively faster response times to positive compared to negative words following in-group compared to out-group primes are viewed as indicative of in-group preference (Plant et al., 2009). Our primes consisted of 12 common Emirati forenames (e.g., Gaith, Shamsa) and 12 common American forenames (e.g., Jason, Emma). Emirati forename selections were based on the most common names listed in the Zayed University student enrolment database (1998 to 2012), excluding forenames that are common in other parts of the Arab/Muslim world (e.g., Fatima, Muhammad) or the US (e.g., Hanna, Adam). American forenames were selected from the USA Social Security Administration's (2014) listing of the most popular names in the USA between 2000 and 2009. Again, forenames that are also common in the Arab world (e.g., Hanna, Adam) were excluded. Emirati and American forenames did not differ in terms of word length,  $M = 5.75$  ( $SD = 1.05$ ) and  $M = 5.75$  ( $SD = 1.28$ ) respectively. Target words were taken from the Affective Norms for English Words (ANEW) collection (Bradley & Lang, 1999). The chosen words included 12 positive nouns (e.g., fun, party) and 12 negative nouns (e.g., pain, danger). Target words were matched for both valence and arousal, and were previously used in APT studies (e.g., Robinson, Ode Moeller & Goetz; (2007). Positive ( $M = 6.08$ ,  $SD = 2.23$ ) and negative target words ( $M = 6.16$ ,  $SD = 1.89$ ) did not differ significantly in terms of word length. In the interest of avoiding testing fatigue, the APT was only presented in English. The relative strength of the affective priming effect was

computed as a D-score, consistent with the recommendations of Wentura and Degner (2010).

The formula for calculating the D score in the present study was as follows:  $D = (\text{median RT for negative targets following Emirati name primes} - \text{median RT for positive targets following Emirati name primes}) - (\text{median RT for negative targets following American name primes} - \text{median RT for positive targets following American name primes})$ . In the present study a D-score larger than 0 is indicative of in-group preference. Negative D-scores, in contrast, reflect an out-group preference.

### **Procedure**

All participants were tested individually in a quiet room. Upon arrival, an experimenter (first author of this paper) seated participants at a desk equipped with a MacBook Pro laptop computer with a 17-inch anti-glare display (screen resolution was set to 1680 x 1050 pixels). Participants were asked to read standardized on-screen instructions and complete a demographics form. After completing the demographics, to ensure that all participants understood the task requirements, they completed a five-trial dummy run of the affective priming task (APT). Task instructions and experimental stimuli were presented and responses recorded using a custom-built application developed in Visual Basic .Net, version 10 (Microsoft, 2010). The APT was set-up as a two-alternative, forced-choice procedure. Each trial began with 1000 ms fixation, a cross in the center of the screen, which was followed by a prime name. The target noun replaced the prime after 300 ms (cf. (Wentura & Degner, 2010) and was displayed until participants responded by pressing either the P or Q key for positive or negative targets respectively (see Figure 1). Participants completed a total of 96 trials. Trials that comprised a positive noun preceded by an Emirati forename, a negative noun preceded by an Emirati forename, a positive noun preceded by an American forename, and a negative noun preceded by an American

forename were equally distributed. All trials were uniquely randomized for each participant. Following the computerized affective priming task, participants completed the computerized self-report measures in the following order: EAT-26, WS, and MIIS. All participants provided informed consent prior to study commencement. The study followed a protocol approved by the Institutional Review Board of Zayed University (Ref: ZU14045F).

### **Data analysis plan**

An independent samples t-Test was conducted to explore differences between those who showed an implicit in-group preference (pro Emirati effect), compared with those who demonstrated an implicit out-group preference (pro American effect). These two groups were compared on all variables (age, language, acculturation, explicit in-group identity and eating disorders symptoms). Additionally a bivariate correlational analysis (Pearson's product moment) was undertaken to explore the nature of the relationships between implicit and explicit in-group preferences and eating disorders symptoms. A further bivariate correlational analysis was undertaken to explore the relationship of the five subscales (*solidarity, satisfaction, centrality, self stereotyping and in-group homogeneity*) of the explicit in-group identity measure (MIIS), with eating disorders symptoms (EAT26).

### **Results**

All data were normally distributed except for eating attitudes (EAT-26) and explicit in-group identity (MIIS) scores, which were positively and negatively skewed respectively. The skewed EAT-26 and MIIS data were appropriately transformed, using standard logarithmic transformation techniques [  $\lg_{10}(y)$  and  $\ln(y)$  ] when included in inferential analyses (see Table 1).

[insert table 1 here]

The only variable associated with eating disorders symptoms (EAT-26 scores) in the present study was implicit in-group preference. Specifically, increases in in-group preference were associated with reduced EAT-26 scores ( $r = -.21, p < .01$ ); explicit in-group identity did not approach significance ( $r = .03, p = .37$ ). To further examine the relationship, the sample was split into two groups (a) those who demonstrated actual in-group preferences ( $N = 47$ ) as indicated by an in-group preference score greater than 0 and (b) those who demonstrated relative out-group preferences as indicated by a score smaller than 0 ( $N = 43$ ). An independent groups t-Test revealed significant group differences for EAT-26 scores in the hypothesized direction;  $t(88) = 2.83, p < .001$ . Importantly, the two groups did not differ significantly on any other variable (see Table 2).

[Insert table 2 here]

In an additional analytic step, we also separated the original in-group preference D-score (that considered participants' responses to both groups simultaneously) into an in-group positivity score as well as an out-group positivity score. Out-group positivity (median RT for negative targets following American names – median RT for positive targets following American names) was not associated with EAT-26 scores ( $r = .05, p = .30$ ). Yet, in-group positivity (median RT for negative targets following Emirati name primes – median RT for positive targets following US name primes) were associated with EAT-26 ( $r = -.32, p < .01$ ). Phrased differently, when in-group positivity rather than in-group preference (relativity to the out-group) was considered, the Pearson's product moment correlation effect size (Cohen, 1988) increased from small ( $r = -.21$ ) to medium ( $r = -.32$ ).

Explicit Western acculturation and in-group evaluations (MIIS) were not correlated with EAT-26 scores. However, an explorative analysis of all the MIIS subscales revealed that the identity centrality subscale demonstrated a negative relationship with eating disorders symptoms ( $r = -.26, p < .01$ ), suggesting that increases in in-group centrality were associated with less eating disorders symptoms.

### **Discussion**

The present study used both implicit and explicit measures of in-group and out-group evaluation to examine their relationship to eating disorders symptoms. It was found that implicit in-group evaluations were associated with eating disorders symptoms. Specifically, increases in in-group preference, as assessed with the APT, were associated with lower levels of eating disorders symptomatology. Furthermore, participants with an actual out-group preference had significantly higher levels of eating disorders symptomatology compared with those demonstrating an in-group preference.

These findings support the idea that deep-seated acculturative processes may play an important role in the development of eating disorders amongst immigrant populations (Davis & Katzman, 1999; Nasser, 1986; T. N. Robinson et al., 1996) and those living through rapid socio-cultural transition (Abou-Saleh et al., 1996; Al-Adawi et al., 2002; Al-Subaie, 2000; Gordon, 2001). The fact that Western acculturation and explicit in-group evaluations were not associated with eating disorders symptoms both echoes (Haudek et al., 1999; Hill & Bhatti, 1995; Mumford et al., 1991), and contradicts previous findings in the field (Al-Subaie, 2000; Eapen et al., 2006) further adding to the equivocation surrounding the relationship between explicit measures of Western acculturation and eating disorders symptomatology (Rieger et al., 2001).

Importantly however, the inclusion of both implicit and explicit measures in the current study allows us to tentatively reconcile and reinterpret the previous equivocal findings based on the observation that explicit and implicit in-group evaluations are sometimes divergent. For example, in a study of Welsh in-group identity, there was a tendency for those explicitly expressing highly positive evaluations, to simultaneously demonstrate more negative, or attenuated implicit evaluations (Hadden et al., In Subm). It could be that, in the context of perceived threats to in-group identity (e.g. being an immigrant, being a minority or exposure to new cultures), some individuals react by expressing particularly positive in-group evaluations, at least explicitly. This idea has previously been described as socially desirable responding based on a desire to assert in-group membership (Brewer, 2001) and to resolve dissonance associated with being a member of a minority group (Festinger & Carlsmith, 1959). Such a pattern of responding could potentially explain the current equivocal findings reported by previous studies using explicit measures to explore the relationship between acculturation and eating disorders. Ultimately, implicit measures of in-group identity may prove more reliable in assessing the possible contribution of acculturation in the context of eating disorders.

Explicit in-group evaluations, as assessed by the MIIS, were not correlated with eating disorders symptoms. The traditional western acculturation hypothesis might predict a negative association between eating disorders symptoms and a positive sense of (non-western) in-group identity. MIIS scores were, however, strongly associated with language and acculturation scores. Specifically, increasingly positive explicit in-group evaluations were associated with greater western acculturation and relatively stronger English language ability (self reported). This pattern of findings, although counter-intuitive, fits with the previously discussed ideas of socially desirable responding (Brewer, 2001; Festinger & Carlsmith, 1959; Hadden et al., In



Subm). It might be that Emiratis with relatively weak Arabic and more westernized lifestyles feel compelled to assert highly positive explicit in-group evaluations. It is also important to note that there was no correlation between explicit and implicit in-group preferences amongst Emiratis. Which suggests that there are many participants with discrepancies between their implicit and explicit in-group evaluations. This has also been observed amongst African Americans, who frequently show little to no implicit in-group preference for Blacks on tasks such as the APT and IAT (Nosek, Graham, & Hawkins, 2010)

Exploring the subscales of explicit in-group identity measure (MIIS) revealed that only the “centrality” subscale was negatively correlated with eating disorders symptomatology. The centrality subscale is described as capturing the subjective importance and salience the individual places on their in-group membership. Items from this subscale include: “The fact that I am Emirati is an important part of my identity” and “ Being Emirati is an important part of how I see myself ” (Leach et al., 2008). Arguably, centrality is a less emotional, and reactivity-prone, aspect of in-group identity compared with the satisfaction (“Being Emirati is pleasant”) and solidarity subscales (“I feel a bond with Emiratis”). Compared with the other subscales, centrality was the most positively correlated ( $r = .13$ ) with implicit in-group preference, while the satisfaction subscale was the least ( $r = -.01$ ), although neither approached statistical significance.

One limitation in the present study was the use of an affective priming task that has not been previously validated with Emirati participants. Furthermore, the use of English for this affective priming task might also be deemed suboptimal. Language has previously been reported to have an effect on implicit evaluation of in-group identity. For example, Danziger and Ward (2010) tested bilingual Arab-Israelis fluent in both Arabic and Hebrew. Using a bilingual version

of the implicit association test (IAT), they postulated that any implicit in-group bias would be modulated by language. This was the case; Arab-Israelis demonstrated a more positive attitude towards Arabic when tested in Arabic and vice versa. These results suggest that, amongst bilingual individuals, each language may modulate in-group biases differently. That said however, the present study focused on the relationship between implicit in-group preference and eating disorders symptoms. Using an Arabic version of the task might result in relatively greater in-group bias; however there is no reason to suspect the direction of the relationship with eating disorders symptoms would change. Future studies might benefit from using pictures as primes (for example, Emirati vs. US icons) rather than names. It has been suggested that extracting the valence of primes may take longer in the case of written words than in the case of pictures (Wentura & Degner, 2010). Using images would circumvent language effects, and we might anticipate larger more robust effect-sizes using an image-based version of the task. A final limitation in the present study was the use of an all student non-clinical sample. However, the fact that an implicit out-group preference, or if we chose to frame it differently, an attenuated in-group preference, was associated with eating disorders symptoms in healthy students, suggests that these findings may have implications in the context of prevention. For example, implicit measures of acculturation (in-group preference) could be used to better target preventative interventions in the context of eating disorders. Similarly, preventative interventions and even therapeutic approaches might include exercises aimed at helping to explore, and perhaps foster, more positive in-group evaluations.

### References

- Abou-Saleh, M. T., Younis, Y., & Karim, L. (1996). Anorexia Nervosa in an Arab Culture. *International Journal of Eating Disorders*, 23, 207-212.
- Al-Adawi, S., Dorvlo, A., Burke, D. T., Al-Bahlani, S., Martin, R. G., & Al-Ismaily, S. (2002). Presence and Severity of Anorexia and Bulimia Among Male and Female Omani and Non-Omani Adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(9), 1124-1130.
- Al-Subaie, A. S. (2000). Some Correlates of Dieting Behaviour in Saudi Schoolgirls. *International Journal of Eating Disorders*, 28, 242-246.
- Alsharekh, A., & Sprinborg, R. (Eds.). (2008). *Popular Culture and Identity in the Arab Gulf States*. London: SAQI in association with London Middle East Institute at SOAS.
- Amodio, D. M., & Mendoza, S. A. (2010). Implicit Intergroup Bias: Cognitive, Affective, and Motivational Underpinnings In B. Gawronski & B. K. Payne (Eds.), *Handbook of Implicit Social Cognition Measurement, Theory, and Applications* (pp. 353-374). New York: Guilford Press.
- Amodio, D. M., & Mendoza, S. A. (2010). Implicit Intergroup Bias: Cognitive, Affective, and Motivational Underpinnings *Handbook of Implicit Social Cognition*. New York: Guilford.
- Bradley, M. M., & Lang, P. J. (1999). Affective norms for English words (ANEW). Gainesville, FL: The National Institute of Mental Health Center for the Study of Emotion and Attention, University of Florida.

Brewer, M. B. (2001). The many faces of social identity: implications for political psychology.

*Political Psychology*, 22(1), 115-125.

Bristol-Rhys, J. (2010). *Emirati Women*. London: C.Hurst & Co.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd edition)*. (2nd ed.).

Hillsdale, NJ: Lawrence Erlbaum Associates.

Danzinger, S., & Ward, R. (2010). Language changes implicit associations between ethnic

groups and evaluation in bilinguals. *Psychological Science*, 21(6), 799-800.

Davidson, C. (2008). Higher Education in the Gulf States: a historical background. In C.

Davidson & P. M. Smith (Eds.), *Higher Education in the Gulf States* (pp. 59-75).

London: SAQI in association with London Middle East Institute at SOAS.

Davis, C., & Katzman, M. A. (1999). Perfection as acculturation: psychological correlates of

eating problems in Chinese male and female students living in the United States. *Int J Eat*

*Disord*, 25(1), 65-70.

Dovidio, J. F., Kawakami, K., Johnson, B., & Howard, A. (1997). On the nature of prejudice:

automatic and controlled processes. *Journal of Experimental Social Psychology*, 33, 510-

540.

Eapen, V., Mabrouk, A. A., & Bin-Othman, S. (2006). Disordered eating attitudes and

symptomatology among adolescent girls in the United Arab Emirates. *Eating*

*Behaviors*(7), 53-60.

Fazio, R. H., & Hilden, L. E. (2001). Emotional reactions to a seemingly prejudiced response:

the role of automatically activated racial attitudes and motivation to control prejudiced

reactions. *Personality and Social Psychology Bulletin*(27), 538-549.

- Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: a bona fide pipe line? *Journal of Personality and Social Psychology*, 69, 1013–1027.
- Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology*, 58(203-211).
- Fox, J. W., Mourtada-Sabbah, N., & Al-Mutawa, M. (Eds.). (2006). *Globalization and the Gulf*. London: Routledge.
- Ghubash, R., Daradkeh, T. K., Al-Muzafari, M. A., Manssori, M. E., & Abou-Saleh, M. T. (2001). Al Ain Community Psychiatric Survey IV: socio-cultural changes (traditionality-liberalism) and prevalence of psychiatric disorders. *Social Psychiatry and Psychiatric Epidemiology*, 36, 565-570.
- Gordon, R. A. (2000). *Eating Disorders: Anatomy of a Social Epidemic* (2nd ed.). Oxford: Blackwell.
- Gordon, R. A. (2001). Eating disorders East and West: A culture-bound syndrome unbound. In M. Nasser, M. A. Katzman & R. A. Gordon (Eds.), *Eating Disorders and Cultures in Transition*. New York: Brunner-Routledge.
- Hadden, L., Ward, R., Mills, D., Davies, J., & Bentall, R. (In Subm). Order of language acquisition in bilinguals predicts strength of implicit and explicit cultural biases differentially. *Psychological Reports*.
- Haudek, C., Rorty, M., & Henker, B. (1999). The role of ethnicity and parental bonding in the eating and weight concerns of Asian-American and Caucasian college women. *Int J Eat Disord*, 25(4), 425-433.

- Hill, A. J., & Bhatti, R. (1995). Body shape perception and dieting in preadolescent british asian girls: Links with eating disorders. *International Journal of Eating Disorders*, 17(2), 175-183. doi: 10.1002/1098-108X(199503)17:2<175::AID-EAT2260170211>3.0.CO;2-6
- Hunt, L. M., Schneider, S., & Comer, B. (2004). Should “acculturation” be a variable in health research? A critical review of research on US Hispanics. *Social Science & Medicine*, 59, 973–986.
- Koneru, V. K., Weisman, A. G., Flynn, P. M., & Betancourt, H. (2007). Acculturation and mental health: Current findings and recommendations for future research. *Applied and Preventive Psychology*, 12, 76-96.
- Leach, C. W., Zomeran, M., Zebel, S., Vliek, M., Pennekamp, S. F., Doosje, B., & Ouwerkerk, J. W. (2008). Group-Level Self-Definition and Self-Investment: A Hierarchical (Multicomponent) Model of In-Group Identification. *Journal of Personality and Social Psychology*, 95(1), 144-165.
- Microsoft. (2010). Visual Basic .Net Version 10. Washington: Microsoft Corporation.
- Mintz, L. B., & O’Halloran, M. S. (2000). The eating attitudes test: Validation with DSM-IV eating disorder criteria. *Journal of Personality Assessment*(74), 489–503.
- Mourtada-Sabbah, N., Al-Mutawa, M., Fox, J. W., & Walters, T. (2008). Media as Social Matrix in the United Arab Emirates. In A. Alsharekh & R. Sprinborg (Eds.), *Popular Culture and Political Identity in the Arab Gulf States*. London: SAQI in association with The London Middle East Institute at SOAS.
- Mumford, D. B., Whitehouse, A. M., & Platts, M. (1991). Sociocultural correlates of eating disorders among Asian schoolgirls in Bradford. *Br J Psychiatry*, 158, 222-228.

- Musaiger, A. O., Al-Mannai, M., & Al-Lalla, O. (2014). Risk of disordered eating attitudes among male adolescents in five Emirates of the United Arab Emirates. *International Journal of Eating Disorders*, 47(8), 898-900.
- Nasser, M. (1986). Comparative study of the prevalence of abnormal eating attitudes among Arab female students at both London and Cairo universities. *Psychological Medicine*, 16, 621-625.
- Nasser, M. (2009). Eating disorders across cultures. *Psychiatry*, 8(9), 347-350.
- NBS. (2009). Population Estimates (2006-2009) (pp. 10). United Arab Emirates: UAE National Bureau of Statistics.
- Nosek, B. A., Graham, J., & Hawkins, C. B. (2010). Implicit Political Cognition *Handbook of Implicit Social Cognition*. New York: Guilford.
- Park, J., & Beaudet, M. P. (2007). Eating Attitudes and their Correlates among Canadian Women Concerned about their Weight. *European Eating Disorders Review*(15), 311-320.
- Plant, E. A., Devine, P. G., Cox, W. T. L., Columb, C., Miller, S. L., Goplen, J., & Peruche, B. M. (2009). The Obama effect: decreasing implicit prejudice and stereotyping *Journal of Experimental and Social Psychology* 45, 961-964.
- Rankin, R. E., & Campbell, D. T. (1955). Galvanic skin response to negro and white experimenters. *Journal of Abnormal and Social Psychology*, 51, 30-33.
- Rieger, E., Touyz, S. W., Swain, T., & Beumont, P. J. V. (2001). Cross-cultural research on anorexia nervosa: Assumptions regarding the role of body weight. *International Journal of Eating Disorders*, 29(2), 205-215. doi: 10.1002/1098-108X(200103)29:2<205::AID-EAT1010>3.0.CO;2-1

- Robinson, M. D., Ode, S., Moeller, S. K., & Goetz, P. W. (2007). Neuroticism and affective priming: Evidence for a neuroticism-linked negative schema. *Personality and Individual Differences*, 42, 1221-1231.
- Robinson, T. N., Killen, J. D., Litt, I. F., Hammer, L. D., Wilson, D. M., Haydel, K. F., . . . Taylor, C. B. (1996). Ethnicity and body dissatisfaction: Are Hispanic and Asian girls at increased risk for eating disorders? *Journal of Adolescent Health*, 19(6), 384-393. doi: [http://dx.doi.org/10.1016/S1054-139X\(96\)00087-0](http://dx.doi.org/10.1016/S1054-139X(96)00087-0)
- Schulte, S. J., & Thomas, J. (2013). Relationship between eating pathology, body dissatisfaction and depressive symptoms among male and female adolescents in the United Arab Emirates. *Eating Behaviors*, 14, 157–160.
- Shoda, T. M., & McConnell, A. R. (2014). Having Explicit-Implicit Evaluation Discrepancies Triggers Race-Based Motivated Reasoning. *Social Cognition*, 32(2), 190-202.
- Solis, J. M., Marks, G., Garcia, M., & Shelton, D. A. J. P. H. S.-. (1990). Acculturation, access to care, and use of preventive services by Hispanics: Findings from HHANES 1982-84. *American Journal of Public Health*, 80(Suppl), 11-19.
- Spindler, G., & Spindler, L. (1963). Psychology in anthropology: applications to culture change. In S. Koch (Ed.), *Psychology: a study of a science* (Vol. 6, pp. 510–551). New York: McGraw-Hill.
- SSA. (2014). Social Security Administration: Top names of the 2000s. Retrieved March/30/2015, 2014, from <http://www.ssa.gov/oact/babynames/decades/names2000s.html>



- Stigler, M. H., Dhavan, P., Dusen, D., Arora, M., Reddy, K. S., & Perry, C. L. (2010). Westernization and Tobacco Use Among Young People in Delhi, India. *Social Science and Medicine*, 71(5), 891–897. doi: 10.1016/j.socscimed.2010.06.002.
- Taryam, A. (2011). *The opposite of indifference*. Sharjah UAE: Dat Ak Khaleej Printing & Publishing.
- Thomas, J. (2013). *Psychological Well-Being in the Gulf States: The New Arabia Felix*. London: Palgrave Macmillan.
- Thomas, J., Abdulrahman, A., & Khan, S. (2010). Eating attitudes and body image concerns among female university students in the United Arab Emirates. *Appetite*, 54, 595-598.
- Wentura, D., & Degner, J. (2010). A Practical Guide to Sequential Priming and Related Tasks. In B. Gawronski & B. K. Payne (Eds.), *Handbook of Implicit Social Cognition Measurement, Theory, and Applications* (pp. 95-116). New York: Guilford Press.
- WHO. (2006). Country Cooperation Strategy for WHO and the United Arab Emirates 2005–2009 (Vol. 1). Cairo: WHO.

Table 1

*Correlations Among and Descriptive Statistics For Key Study Variables*

	<i>M (SD)</i>	Age	Eat-26	MIIS	IIGP	WS	Language
Age	21.52 (3.43)		.07	-.11	.02	-.19	-.13
Eat-26	14.78 (11.04)			.01	.21*	.00	.03
MIIS	85.14 (9.59)				.04	.44**	.32**
IIGP	-0.19 (5.73)					-.01	.05
WS	-0.72 (7.30)						.64**
Language	-1.7 (4.16)						

*Notes.* *N*'s range from 90 to 87 due to occasional missing data. Eat-26 = eating disorders symptoms.

*MIIS* = Multi component in-group identity scale. *IIGE.* = Implicit in-group preference. *WS* = Westernization Survey. *Language* = English and Arabic language competency.

\*  $p < .05$ .

Table 2

*Mean scores (including their standard deviations) for key study variables by implicit in-group preference score. Cohen's d quantifies the size of the observed difference between participants demonstrating either in-group or out-group preference.*

	In-group preference	Out-group preference	Cohen's d
Measures	12.44 (9.72)	17.78 (11.62)	.45
EAT-26	84.75 (10.05)	84.87 (9.53)	.01
Explicit ID			
Language	-1.44 (3.83)	-1.90 (4.52)	.09
Acculturation	-.16 (7.09)	-.75 (7.61)	.07

*Notes:* In-group preference = relatively faster categorization of positive words when preceded by Emirati names. Out-group preference = relatively faster categorization of positive words when preceded by US names.

*Figure 1.* A sample trial from the affective priming task. The study prime was either a common Emirati or US forename; target stimuli were nouns with either an obvious positive or negative valence. Participants categorized target stimuli as positive or negative by pressing the P or Q key respectively.

